PATENT CLAIMS

1. An electric machine with,
   - a cylindrical magnet arrangement (2) and
   - a cooling device for cooling the magnet arrangement (2),

   characterized in that
   - the cooling device has a coolant channel (7), by means of which a coolant can be distributed essentially uniformly in the circumferential direction of the cylindrical magnet arrangement (2).

2. The electric machine as claimed in claim 1, which has a housing (1), the coolant channel (7) being part of the housing (1).

3. The electric machine as claimed in claim 1 or 2, the coolant (7) surrounding the magnet arrangement (2) completely on the circumference.

4. The electric machine as claimed in one of the preceding claims, the coolant channel (7) being interrupted diagonally opposite a coolant entry (8).

5. The electric machine as claimed in one of the preceding claims, a laminated core of the magnet arrangement (2) forming a wall of the coolant channel.

6. The electric machine as claimed in one of the preceding claims, the coolant channel (7) being arranged upstream of the cylindrical magnet arrangement (2) in the axial direction.

7. The electric machine as claimed in one of the preceding claims, the coolant channel (7) being open in one or both axial directions and being capable of being covered with a bearing shield (4) and/or an annular cover (10).

8. The electric machine as claimed in one of the preceding claims, one or more coolant entries (8) being arranged on the coolant channel (7) radially and/or axially with respect to the cylindrical magnet arrangement (2).

9. The electric machine as claimed in one of the preceding claims, which has a motor terminal junction box (16), the coolant channel (7) being reduced in its dimension in the radial direction in the region of the motor terminal junction box (16).

10. The electric machine as claimed in one of claims 2 to 9, the housing (1) consisting of a pressure plate structure.

11. A method for cooling an electric machine, which possesses a cylindrical magnet arrangement (2), by
- the conduction of a coolant stream around the cylindrical magnet arrangement (2),

characterized in that
- the coolant stream, after being introduced into the electric machine at the commencement of the cooling operation, is distributed essentially uniformly on the circumference of the magnet arrangement (2).

12. The method as claimed in claim 11, the coolant stream being distributed on the magnet arrangement (2) completely on the circumference before it is conducted further in a radial or axial direction.

13. The method as claimed in claim 11 or 12, the coolant stream, when being conducted around the magnet arrangement (2) in a circumferential direction, is conducted directly past a laminated core of the magnet arrangement (2).

14. The method as claimed in one of claims 11 to 13, the coolant stream being distributed in a circumferential direction upstream of the cylindrical magnet arrangement (2) in the axial direction, before it is conducted via the magnet arrangement (2).

15. The method as claimed in one of claims 11 to 14, the coolant stream, after being distributed in the circumferential direction, being conducted further on in both axial directions.